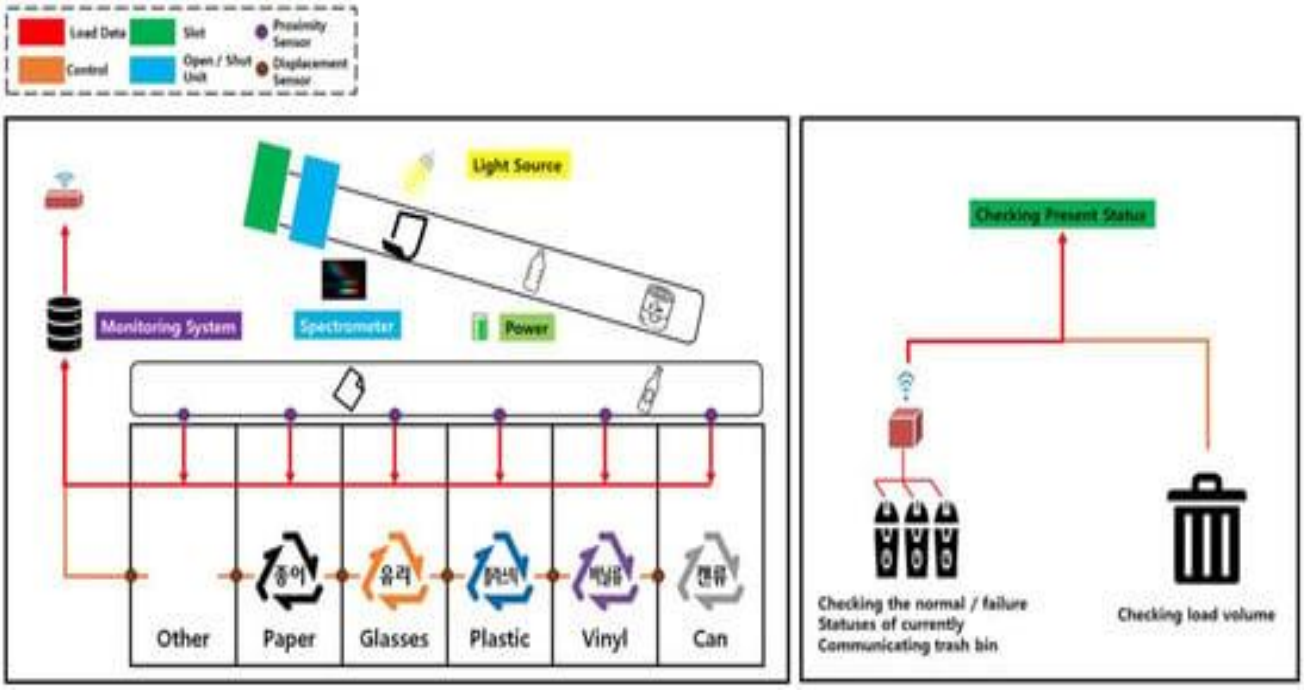
Project Design Phase-Part 1

Solution Architecture

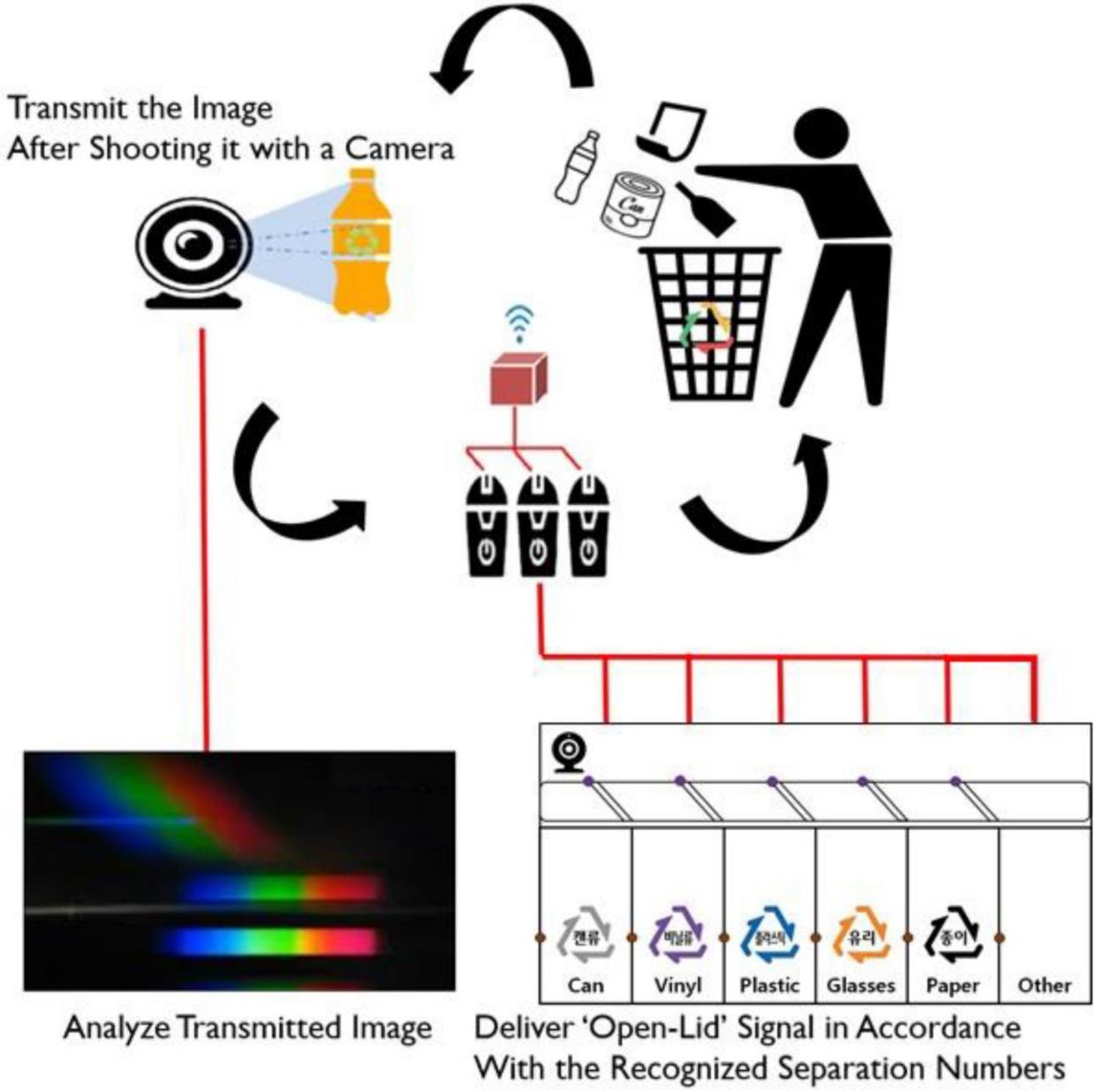
Date	12 May 2023
Team ID	NM2023TMID00662
Project Name	Smart City Waste Management System With Connected Trashcans
Maximum Marks	

A Design of the IoT-Based Smart Trash Bin

The proposed smart trash bin that was adopted. As for the mechanism, a label indicating the type of recyclable material is scanned by the camera attached to the slot. If it confirms that the trash is recyclable, the trash cover will be opened to drop the trash down into the storage. If there is no label to be read, the type of trash will be identified by the spectroscope and image classification and stored based on the resulting calculation value. Depending on its value, when the trash approaches the proximity sensor attached to each recycling bin slot, the slot opens and enters the space. The degree of trash bin filling can be checked through the disposition sensor. When the trash bin is 80% full, it sends an alarm to the central server using a communication module.



According to the pseudocode, one must check the status of the trash bin before putting the trash in to see if it can receive the trash. It sends an alarm to the server, telling the user that the trash bin is full. If there is space, one can put the trash in the trash bin. First, make sure that there is a recycling label on the trash. As soon as the label is confirmed, it enters the separation collection process, and if not, it checks the type of trash through spectroscope and image classification. If the type of trash is confirmed through this process, it will determine whether it is recyclable and collect it separated into recyclable waste (paper, plastic, cans, glass, and vinyl) and non-recyclable trash



Web Server:

A Web server is a program that uses Hypertext Transfer Protocol to serve the files that form Web pages to users, in response to their requests, which are forwarded by their computers' HTTP clients. Dedicated computers and appliances may be referred to as Web servers as well.

Front end Technologies:

HTML5:

HTML5 is a markup language used for structuring and presenting content on the World Wide Web. It is the latest and most enhanced version of HTML.

CSS3:

Cascading Style Sheets (CSS) is a style sheet language used for describing the look and formatting of a document written in a markup language.CSS3 is the latest standard of CSS.

Javascript:

JavaScript is a full-fledged dynamic programming language that, when applied to an HTML document, can provide dynamic interactivity on websites.

JQuery:

JQuery is a cross-platform JavaScript library designed to simplify the client-side scripting of HTML. JQuery is the most popular JavaScript library in use today.

Back end Technologies:

PHP:

PHP is a server scripting language and a powerful tool for making dynamic and interactive Web pages.

MySql:

MySQL is an open-source relational database management system (RDBMS). It is very fast, reliable, and easy to use